

Disclosed are a circuit and method for remote diagnosis of personal computers. The method comprises the steps of (1) confirming an existence and a proper operation of a modem coupled to the personal computer, the step of confirming performed in a central processing unit ("CPU") of the personal computer and in a diagnostic environment independent of a normal operating system of the personal computer, (2) receiving an indication of a selection of diagnostic routines to be performed from a remote location via the modem and (3) performing selected ones of the diagnostic routines as a function of the selection. The present invention allows an experienced technician located remotely from the computer to interact as though seated in front of it, to thereby allow remote diagnosis of even critical faults that prevent the computer from booting.

Schieve, abstract. Nothing in the abstract of Schieve discloses or suggests a computer program pre-recorded on a removable storage medium, or that the removable storage medium is to be loaded into a removable media storage device of a local computer, as recited by claim 1.

The next section of Schieve identified in the rejection recites the following.

... the technicians' time and frequently removes the technician from technical resources, such a repair manuals and online help, that are available at the technical support center. Second, the PC can be supplied with dedicated diagnostic hardware. This is not only expensive, rendering the PC as a whole relatively noncompetitive in terms of its price, but is frequently a wasteful duplication of hardware, as the diagnostic hardware comes into use only infrequently. Third, the remote technician can perform remote diagnostics via communications software running in conjunction with traditional disk-based diagnostics, all executing under the PC's normal operating system. Unfortunately, as detailed above, this third option is only available when the PC is substantially operable and bootable and not when the PC has suffered a non-bootable fault. ... Accordingly, to address the above-noted deficiencies in the prior art, the present invention advantageously provides a method of remotely diagnosing faults on a PC comprising the steps of (1) confirming an existence and a proper operation of a modem coupled to the PC, the step of confirming performed in a CPU of the PC and in a diagnostic environment independent of a normal operating system of the PC, (2) receiving an indication of a selection of diagnostic ...

Schieve, column 3, lines 1-15 and 43-49. Nothing in these sections of Schieve discloses or suggests a computer program pre-recorded on a removable storage medium, or that the removable storage medium is to be loaded into a removable media storage device of a local computer, as recited by claim 1.

The final section of Schieve identified in the rejection recites the following.

In accordance with the above-described objects and features, a preferred embodiment of the present invention also encompasses a system for remote diagnosis of a personal computer comprising (1) non-volatile memory within the personal computer containing a diagnostic operating environment, the diagnostic operating environment independent of a normal operating system of the personal computer and capable of visually communicating information pertaining

Schieve, column 4, lines 60-67 (underline added). Nothing in this section of Schieve discloses or suggests a computer program pre-recorded on a removable storage medium, or that the removable storage medium is to be loaded into a removable media storage device of a local computer, as recited by claim 1. In fact, the underlined section describes use of a non-volatile memory within the personal computer, which is different from a removable storage medium as recited by claim 1.

In fact, Schieve teaches away from using a removable storage medium, as illustrated in the following section.

Diagnostic code is sometimes stored on disk and retrieved therefrom for execution by the CPU (so-called disk-based diagnostics). One advantage of disk-based diagnostics is that disks provide a relatively large area in which to store code, allowing diagnostic routines to be relatively sophisticated and thorough in their testing and reporting. Unfortunately, diagnostic routines are frequently invoked when components in the computer are not completely functional. To successfully retrieve and execute disk-based diagnostics, the following components must be fully functional: CPU, address and data buses, bus controller, disk drive controller, disk drive and keyboard. If any significant information is to be relayed back to the user, a display device or a printer and their associated interface hardware must also be functional. It is apparent therefore that if any one of these components is not fully functional, the diagnostics may not execute or interact with the user properly.

Schieve, column 1, lines 46-62. As this section illustrates, Schieve teaches away from disk-based programs.

Cheffetz fails to remedy the shortcomings of Schieve noted above.

For at least these reasons, claim 1 and claims 2, 3, 7, and 8 that depend therefrom should be allowable. Reconsideration and allowance are respectfully requested.

Claim 4 is directed to a method of data recovery reciting, among other limitations, diagnosing a data storage device, and rectifying data on the data storage device.

The rejection cites notes that Schieve fails to disclose "a method for remotely recover[ing] data from the computer."

However, the rejection continues by citing Schieve as disclosing the "limitation for diagnosis and rectifying data on the local computer." Specifically, the rejection cites the following section of Schieve as disclosing such.

... a method of remotely diagnosing faults on a PC comprising the steps of (1) confirming an existence and a proper operation of a modem coupled to the PC, the step of confirming performed in a CPU of the PC and in a diagnostic environment independent of a normal operating system of the PC, (2) receiving an indication of a selection of diagnostic routines to be performed from a remote location via the modem and (3) performing selected ones of the diagnostic routines as a function of the selection.

The first object is met by providing an independent diagnostic operating system (one that is embedded in non-volatile memory and that does not depend on the existence or proper functioning of the PC's main operating system--DOS, in most cases). Accordingly, the method of the present invention comprises the step of executing a diagnostic operating environment prior to the step of confirming, the diagnostic operating environment independent of the normal operating system and capable of visually communicating information pertaining to diagnostics of the PC to a user.

Schieve, column 3, lines 44-63. However, this section of Schieve fails to disclose or suggest the rectification (i.e., the removal of errors) of data, as recited by claim 4.

For at least these reasons, reconsideration and allowance of claim 4 are respectfully requested.

Claim 9 is directed to a modulated signal having computer executable instructions including, among other limitations, downloading a data recovery application program from a remote data recovery computer.

Neither Schieve nor Cheffetz disclose downloading a data recovery application program from a remote data recovery computer. Further, the rejection fails to cite any section of either Schieve or Cheffetz that suggests as such.

Therefore, it is respectfully suggested that claim 9 is allowable. Reconsideration and allowance are respectfully requested.

In view of the above amendments and remarks, claims 1-5 and 7-17 are in condition for allowance. Reconsideration and allowance are respectfully requested. The Examiner is encouraged to contact the undersigned attorney at (612) 336-4771 should an interview be beneficial in moving this case into condition for allowance.

Respectfully submitted,
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Date: November 3, 2003

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